Claims

[Claim 1]

A method for substituting an editing target C to U of a target RNA, the method comprising

applying to the target RNA an artificial DYW protein containing a DYW domain consisting of any one of the polypeptides a1 and b1 mentioned below:

a1. a polypeptide having a sequence identity of at least 90% to the sequence of SEQ ID NO: 1, and having a C-to-U editing activity; or a polypeptide consisting of the sequence of SEQ ID NO: 41;

b1. a polypeptide having a sequence identity of at least 90% to the sequence of SEQ ID NO: 2, and having a C-to-U editing activity; or a polypeptide consisting of the sequence of SEQ ID NO: 54.

[Claim 2]

A DYW domain consisting of any one of the polypeptides mentioned below:

- a polypeptide consisting of the sequence of SEQ ID NO: 1; a polypeptide having a sequence identity of at least 90% to the sequence of SEQ ID NO: 1, and having a C-to-U editing activity; a polypeptides having a sequence derived from the sequence of SEQ ID NO: 1 by substitution, deletion, or addition of 1 to 13, and having a C-to-U editing activity; or a polypeptide consisting of the sequence of SEQ ID NO: 41;

- a polypeptide consisting of the sequence of SEQ ID NO: 2; a polypeptide having a sequence identity of at least 90% to the sequence of SEQ ID NO: 2, and having a C-to-U editing activity; a polypeptides having a sequence derived from the sequence of SEQ ID NO: 2 by substitution, deletion, or addition of 1 to 12, and having a C-to-U editing activity; or a polypeptide consisting of the sequence of SEQ ID NO: 54.

[Claim 3]

The DYW domain according to claim 2, consisting of any one of the polypeptides mentioned below:

- the polypeptide consisting of the sequence of SEQ ID NO: 1;

- the polypeptide consisting of the sequence of SEQ ID NO: 2.

[Claim 4]

A DYW protein containing

an RNA-binding domain that contains at least one pentatricopeptide repeat motif and can sequence-specifically bind to a target RNA, and

the DYW domain according to claim 2 or 3.

[Claim 5]

The DYW protein according to claim 4, wherein the RNA-binding domain is of a PLS type.

[Claim 6]

A composition for editing RNA in an eukaryotic cell, the composition containing the DYW protein according to claim 4 or 5.

[Claim 7]

A nucleic acid encoding the DYW protein according to claim 4 or 5.

[Claim 8]

A vector containing the nucleic acid according to claim 7.

[Claim 9]

A cell containing the vector according to claim 8, except cells in living animal body.

[Claim 10]

A composition for editing RNA in an eukaryotic cell, the composition containing the nucleic acid according to claim 7, or the vector according to claim 8.